SEQUENCE LISTING

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<110>  Udagawa, Hiroaki
       Frandsen, Torben
       Nielsen, Tom
       Kauppinen, Markus
       Christensen, Soeren

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<170>  PatentIn version 3.1

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caa gga ggc gcc gcg gtt cct aca acc gtc gac ctc aca tat gca gac      96
Gln Gly Gly Ala Ala Val Pro Thr Thr Val Asp Leu Thr Tyr Ala Asp
-20                 -15                 -10                 -5

ata tca cct cgc gca ctg gat aat gcc cct gat ggt tat acc ccg agc     144
Ile Ser Pro Arg Ala Leu Asp Asn Ala Pro Asp Gly Tyr Thr Pro Ser
            -1   1                  5                  10

aat gta tcc tgt cct gca aac aga ccg acg att cgc agc gcg tca acc     192
Asn Val Ser Cys Pro Ala Asn Arg Pro Thr Ile Arg Ser Ala Ser Thr
            15                  20                  25

ctg tca tcg aac gag acg gca tgg gtg gac gtc cgg cgt aag cag act     240
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1

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    Leu Ser Ser Asn Glu Thr Ala Trp Val Asp Val Arg Arg Lys Gln Thr
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    gtc tca gcg atg aaa gac ctt ttc ggc cat atc aac atg agc tca ttt        288
    Val Ser Ala Met Lys Asp Leu Phe Gly His Ile Asn Met Ser Ser Phe
    45              50                  55                  60

    gac gct att tcg tac atc aac agc cat tca tca aat atc acc aac ata        336
    Asp Ala Ile Ser Tyr Ile Asn Ser His Ser Ser Asn Ile Thr Asn Ile
                    65                  70                  75

    ccc aac atc ggt att gcc gtg tcc ggc ggt ggc tac aga gcc ctg acc        384
    Pro Asn Ile Gly Ile Ala Val Ser Gly Gly Gly Tyr Arg Ala Leu Thr
                    80                  85                  90

    aac ggc gcg gga gca ctc aag gca ttc gac agt cga acg gaa aac tca        432
    Asn Gly Ala Gly Ala Leu Lys Ala Phe Asp Ser Arg Thr Glu Asn Ser
                95                  100                 105

    acc cat aat gga cag ctc ggt ggt ctt ctg cag tca gcc aca tac ctg        480
    Thr His Asn Gly Gln Leu Gly Gly Leu Leu Gln Ser Ala Thr Tyr Leu
            110                 115                 120

    tcc ggt ctc tcc gga ggt ggc tgg ctc ctg ggc tca atc tac atc aac        528
    Ser Gly Leu Ser Gly Gly Gly Trp Leu Leu Gly Ser Ile Tyr Ile Asn
    125                 130                 135                 140

    aac ttc acc acc gtc tcc aat ctg caa acc tac aaa gag ggc gaa gtc        576
    Asn Phe Thr Thr Val Ser Asn Leu Gln Thr Tyr Lys Glu Gly Glu Val
                    145                 150                 155

    tgg cag ttc cag aat tca atc acg aaa ggc cca aag acc aac ggc ttg        624
    Trp Gln Phe Gln Asn Ser Ile Thr Lys Gly Pro Lys Thr Asn Gly Leu
                160                 165                 170

    caa gct tgg gat aca gcc aag tac tac cgc gat ctg gcc aag gtg gtc        672
    Gln Ala Trp Asp Thr Ala Lys Tyr Tyr Arg Asp Leu Ala Lys Val Val
                175                 180                 185

    gct ggc aag aag gac gcg ggc ttc aac act tcc ttc acg gac tac tgg        720
    Ala Gly Lys Lys Asp Ala Gly Phe Asn Thr Ser Phe Thr Asp Tyr Trp
            190                 195                 200

    ggt cgc gca ctc tcc tac cag ctg att aac gcg acc gac gga ggc cca        768
    Gly Arg Ala Leu Ser Tyr Gln Leu Ile Asn Ala Thr Asp Gly Gly Pro
    205                 210                 215                 220

    ggc tac acc tgg tca tcg atc gct tta acc cag ggc ttc aag aac gga        816
    Gly Tyr Thr Trp Ser Ser Ile Ala Leu Thr Gln Gly Phe Lys Asn Gly
                    225                 230                 235

    aac atg ccc atg ccg ctc ctt gtc gcc gac ggc cgc aac cca ggc gag        864
    Asn Met Pro Met Pro Leu Leu Val Ala Asp Gly Arg Asn Pro Gly Glu
                240                 245                 250

    acc cta atc ggc agc aac tcg acc gtg tat gag ttc aac ccc tgg gaa        912
    Thr Leu Ile Gly Ser Asn Ser Thr Val Tyr Glu Phe Asn Pro Trp Glu
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2

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                 255                      260                      265

ttc ggc agt ttt gat ccg tcc atc ttc ggc ttc gct ccc ctc gaa tac      960
Phe Gly Ser Phe Asp Pro Ser Ile Phe Gly Phe Ala Pro Leu Glu Tyr
        270                      275                      280

ctc gga tcc tac ttt gag aac ggc gaa gtc cca tcc agc cga tcc tgc     1008
Leu Gly Ser Tyr Phe Glu Asn Gly Glu Val Pro Ser Ser Arg Ser Cys
285                      290                      295                      300

gtc cgc ggc ttc gat aac gca ggc ttc gtc atg gga acc tcc tcc agt     1056
Val Arg Gly Phe Asp Asn Ala Gly Phe Val Met Gly Thr Ser Ser Ser
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ctc ttc aac caa ttc atc ctg aag ctc aac acc acc gac atc cca tca     1104
Leu Phe Asn Gln Phe Ile Leu Lys Leu Asn Thr Thr Asp Ile Pro Ser
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acc ctc aaa acg gtc atc gcc agc atc cta gaa gaa cta ggc gac cgc     1152
Thr Leu Lys Thr Val Ile Ala Ser Ile Leu Glu Glu Leu Gly Asp Arg
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aac gac gac atc gcc atc tac tct ccc aac ccc ttc tac ggg tac cgc     1200
Asn Asp Asp Ile Ala Ile Tyr Ser Pro Asn Pro Phe Tyr Gly Tyr Arg
        350                      355                      360

aac gcg aca gtt tca tac gaa aag acc ccg gac ctg aac gtc gtc gac     1248
Asn Ala Thr Val Ser Tyr Glu Lys Thr Pro Asp Leu Asn Val Val Asp
365                      370                      375                      380

ggt ggc gaa gac aaa cag aac ctc ccc ctc cat cct ctc atc caa ccc     1296
Gly Gly Glu Asp Lys Gln Asn Leu Pro Leu His Pro Leu Ile Gln Pro
                385                      390                      395

gcc cgc aac gtg gac gtc atc ttc gcc gtc gac tcc tca gcc agt acc     1344
Ala Arg Asn Val Asp Val Ile Phe Ala Val Asp Ser Ser Ala Ser Thr
                400                      405                      410

tcg gac aac tgg ccc aac gga agt cct ctc gtc gcg act tac gaa cgt     1392
Ser Asp Asn Trp Pro Asn Gly Ser Pro Leu Val Ala Thr Tyr Glu Arg
                415                      420                      425

agt ctc aac tca acc ggt atc gga aac ggc acc gcg ttc cct agc atc     1440
Ser Leu Asn Ser Thr Gly Ile Gly Asn Gly Thr Ala Phe Pro Ser Ile
        430                      435                      440

ccg gac aag agc acc ttc att aac ctg ggc ttg aac acc cgt ccg act     1488
Pro Asp Lys Ser Thr Phe Ile Asn Leu Gly Leu Asn Thr Arg Pro Thr
445                      450                      455                      460

ttc ttc ggc tgc aat agt tcc aat atc aca ggc cat gca ccc ctg gtt     1536
Phe Phe Gly Cys Asn Ser Ser Asn Ile Thr Gly His Ala Pro Leu Val
                465                      470                      475

gtc tac ctc ccc aac tac ccc tac aca acc ctc tcc aac aag tcg acc     1584
Val Tyr Leu Pro Asn Tyr Pro Tyr Thr Thr Leu Ser Asn Lys Ser Thr
        480                      485                      490
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3

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ttc cag ctc aag tac gag atc ttg gag cgt gat gag atg atc acc aat        1632
Phe Gln Leu Lys Tyr Glu Ile Leu Glu Arg Asp Glu Met Ile Thr Asn
        495             500             505

ggc tgg aac gtg gtt act atg ggt aat gga tca agg aag tct tac gag        1680
Gly Trp Asn Val Val Thr Met Gly Asn Gly Ser Arg Lys Ser Tyr Glu
        510             515             520

gat tgg ccg act tgt gcg ggc tgc gct att ctg agt cgc tcg ttt gat        1728
Asp Trp Pro Thr Cys Ala Gly Cys Ala Ile Leu Ser Arg Ser Phe Asp
525             530             535             540

cgg act aat acc cag gtg ccg gat atg tgc tcg cag tgt ttt gac aag        1776
Arg Thr Asn Thr Gln Val Pro Asp Met Cys Ser Gln Cys Phe Asp Lys
            545             550             555

tat tgc tgg gat gga acg agg aat agt acg acg ccg gcg gcg tat gag        1824
Tyr Cys Trp Asp Gly Thr Arg Asn Ser Thr Thr Pro Ala Ala Tyr Glu
        560             565             570

ccg aag gta ttg atg gct agt gcg ggt gtg agg ggt att tcg atg tcg        1872
Pro Lys Val Leu Met Ala Ser Ala Gly Val Arg Gly Ile Ser Met Ser
        575             580             585

agg ttg gtt ttg ggt ctc ttt ccg gtg gtg gtt ggg gtt tgg atg atg        1920
Arg Leu Val Leu Gly Leu Phe Pro Val Val Val Gly Val Trp Met Met
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Ile Ser Pro Arg Ala Leu Asp Asn Ala Pro Asp Gly Tyr Thr Pro Ser
            -1  1           5               10

Asn Val Ser Cys Pro Ala Asn Arg Pro Thr Ile Arg Ser Ala Ser Thr
        15              20              25

Leu Ser Ser Asn Glu Thr Ala Trp Val Asp Val Arg Arg Lys Gln Thr
    30              35              40
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4

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Val Ser Ala Met Lys Asp Leu Phe Gly His Ile Asn Met Ser Ser Phe
45              50              55              60


Asp Ala Ile Ser Tyr Ile Asn Ser His Ser Ser Asn Ile Thr Asn Ile
            65              70              75


Pro Asn Ile Gly Ile Ala Val Ser Gly Gly Tyr Arg Ala Leu Thr
            80              85              90


Asn Gly Ala Gly Ala Leu Lys Ala Phe Asp Ser Arg Thr Glu Asn Ser
        95              100             105


Thr His Asn Gly Gln Leu Gly Gly Leu Leu Gln Ser Ala Thr Tyr Leu
    110             115             120


Ser Gly Leu Ser Gly Gly Gly Trp Leu Leu Gly Ser Ile Tyr Ile Asn
125             130             135             140


Asn Phe Thr Thr Val Ser Asn Leu Gln Thr Tyr Lys Glu Gly Glu Val
            145             150             155


Trp Gln Phe Gln Asn Ser Ile Thr Lys Gly Pro Lys Thr Asn Gly Leu
        160             165             170


Gln Ala Trp Asp Thr Ala Lys Tyr Tyr Arg Asp Leu Ala Lys Val Val
        175             180             185


Ala Gly Lys Lys Asp Ala Gly Phe Asn Thr Ser Phe Thr Asp Tyr Trp
    190             195             200


Gly Arg Ala Leu Ser Tyr Gln Leu Ile Asn Ala Thr Asp Gly Gly Pro
205             210             215             220


Gly Tyr Thr Trp Ser Ser Ile Ala Leu Thr Gln Gly Phe Lys Asn Gly
            225             230             235


Asn Met Pro Met Pro Leu Leu Val Ala Asp Gly Arg Asn Pro Gly Glu
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Thr Leu Ile Gly Ser Asn Ser Thr Val Tyr Glu Phe Asn Pro Trp Glu
        255             260             265
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5

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Phe Gly Ser Phe Asp Pro Ser Ile Phe Gly Phe Ala Pro Leu Glu Tyr
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Leu Gly Ser Tyr Phe Glu Asn Gly Glu Val Pro Ser Ser Arg Ser Cys
285                 290                 295                 300

Val Arg Gly Phe Asp Asn Ala Gly Phe Val Met Gly Thr Ser Ser Ser
                305                 310                 315

Leu Phe Asn Gln Phe Ile Leu Lys Leu Asn Thr Thr Asp Ile Pro Ser
                320                 325                 330

Thr Leu Lys Thr Val Ile Ala Ser Ile Leu Glu Glu Leu Gly Asp Arg
        335                 340                 345

Asn Asp Asp Ile Ala Ile Tyr Ser Pro Asn Pro Phe Tyr Gly Tyr Arg
    350                 355                 360

Asn Ala Thr Val Ser Tyr Glu Lys Thr Pro Asp Leu Asn Val Val Asp
365                 370                 375                 380

Gly Gly Glu Asp Lys Gln Asn Leu Pro Leu His Pro Leu Ile Gln Pro
                385                 390                 395

Ala Arg Asn Val Asp Val Ile Phe Ala Val Asp Ser Ser Ala Ser Thr
        400                 405                 410

Ser Asp Asn Trp Pro Asn Gly Ser Pro Leu Val Ala Thr Tyr Glu Arg
        415                 420                 425

Ser Leu Asn Ser Thr Gly Ile Gly Asn Gly Thr Ala Phe Pro Ser Ile
    430                 435                 440

Pro Asp Lys Ser Thr Phe Ile Asn Leu Gly Leu Asn Thr Arg Pro Thr
445                 450                 455                 460

Phe Phe Gly Cys Asn Ser Ser Asn Ile Thr Gly His Ala Pro Leu Val
                465                 470                 475

Val Tyr Leu Pro Asn Tyr Pro Tyr Thr Thr Leu Ser Asn Lys Ser Thr
            480                 485                 490
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6

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Phe Gln Leu Lys Tyr Glu Ile Leu Glu Arg Asp Glu Met Ile Thr Asn
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Gly Trp Asn Val Val Thr Met Gly Asn Gly Ser Arg Lys Ser Tyr Glu
    510                 515                 520


Asp Trp Pro Thr Cys Ala Gly Cys Ala Ile Leu Ser Arg Ser Phe Asp
525                 530                 535                 540


Arg Thr Asn Thr Gln Val Pro Asp Met Cys Ser Gln Cys Phe Asp Lys
                545                 550                 555


Tyr Cys Trp Asp Gly Thr Arg Asn Ser Thr Thr Pro Ala Ala Tyr Glu
            560                 565                 570


Pro Lys Val Leu Met Ala Ser Ala Gly Val Arg Gly Ile Ser Met Ser
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Arg Leu Val Leu Gly Leu Phe Pro Val Val Val Gly Val Trp Met Met
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gct tcc ctg cct gtc gaa agg gcc gag gct gag gtt gcg tcc gtc gcc    96
Ala Ser Leu Pro Val Glu Arg Ala Glu Ala Glu Val Ala Ser Val Ala
        -20                 -15                 -10

gcc gat tta atc gtc cgc gcc ctc ccc aat gcc ccc gat ggc tac act   144
Ala Asp Leu Ile Val Arg Ala Leu Pro Asn Ala Pro Asp Gly Tyr Thr
        -5                  -1  1                5                  10
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7

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ccc tcc aat gtc acc tgt ccc tcg act cgt ccg·agc att cgt gat gcc      192
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                15              20              25

tcg ggc atc tcc acc aac gag acc gag tgg ctc aag gtc cgt cgc aat      240
Ser Gly Ile Ser Thr Asn Glu Thr Glu Trp Leu Lys Val Arg Arg Asn
            30              35              40

gcg acc ctc acc ccg atg aag aac ctc ctt agc cgt ctc aac ctc acc      288
Ala Thr Leu Thr Pro Met Lys Asn Leu Leu Ser Arg Leu Asn Leu Thr
        45              50              55

ggc ttt gat acc acc tcc tac atc aat gaa cac tcc agc aac atc tcc      336
Gly Phe Asp Thr Thr Ser Tyr Ile Asn Glu His Ser Ser Asn Ile Ser
    60              65              70

aac atc ccc aac att gca att gcg gct tcg ggt ggt gga tac cgt gcg      384
Asn Ile Pro Asn Ile Ala Ile Ala Ala Ser Gly Gly Gly Tyr Arg Ala
75              80              85              90

ctc acc aac gga gct ggt gcg ctg aag gct ttc gac agc cgc tcc gac      432
Leu Thr Asn Gly Ala Gly Ala Leu Lys Ala Phe Asp Ser Arg Ser Asp
            95              100             105

aat gcc acc aac tcc ggt caa ctg ggt ggt ctg ctg cag gcg gca acc      480
Asn Ala Thr Asn Ser Gly Gln Leu Gly Gly Leu Leu Gln Ala Ala Thr
            110             115             120

tac gtc tct ggt ctg agt ggt ggt agc tgg ctg gtc gga tcc atg ttc      528
Tyr Val Ser Gly Leu Ser Gly Gly Ser Trp Leu Val Gly Ser Met Phe
        125             130             135

gtc aac aac ttc tcc tcc atc ggt gaa ttg caa gcc agc gag aag gtc      576
Val Asn Asn Phe Ser Ser Ile Gly Glu Leu Gln Ala Ser Glu Lys Val
    140             145             150

tgg cgc ttc gac aag tcc ctg ctc gag gga ccc aac ttc gac cac atc      624
Trp Arg Phe Asp Lys Ser Leu Leu Glu Gly Pro Asn Phe Asp His Ile
155             160             165             170

cag atc gtc agc acg gtg gaa tac tgg aag gac att acc gag gaa gtc      672
Gln Ile Val Ser Thr Val Glu Tyr Trp Lys Asp Ile Thr Glu Glu Val
            175             180             185

gac ggc aag gct aac gct ggt ttt aac act tcc ttc acc gac tac tgg      720
Asp Gly Lys Ala Asn Ala Gly Phe Asn Thr Ser Phe Thr Asp Tyr Trp
            190             195             200

ggc cgt gcg ctg tcc tac cag ctg gtg aac gcc tcc gat gac aag ggt      768
Gly Arg Ala Leu Ser Tyr Gln Leu Val Asn Ala Ser Asp Asp Lys Gly
        205             210             215

ggt ccc gac tac acc tgg tcc tcc att gcg ctc atg gac gac ttc aag      816
Gly Pro Asp Tyr Thr Trp Ser Ser Ile Ala Leu Met Asp Asp Phe Lys
    220             225             230
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8

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aac ggc cag tac ccc atg cct att gtg gtc gcc gac ggc cgc aac ccc    864
Asn Gly Gln Tyr Pro Met Pro Ile Val Val Ala Asp Gly Arg Asn Pro
235             240             245             250

ggc gaa atc atc gtt gag acc aat gcc acc gtt tat gaa gtg aac cct    912
Gly Glu Ile Ile Val Glu Thr Asn Ala Thr Val Tyr Glu Val Asn Pro
                255             260             265

tgg gaa ttc ggc tct ttc gac ccc agc gtc tac gcc ttc gct ccc ctg    960
Trp Glu Phe Gly Ser Phe Asp Pro Ser Val Tyr Ala Phe Ala Pro Leu
            270             275             280

cag tat ctg ggc tcc cgg ttc gag aac ggc tcc atc ccg gac aac ggc   1008
Gln Tyr Leu Gly Ser Arg Phe Glu Asn Gly Ser Ile Pro Asp Asn Gly
            285             290             295

acc tgc gtg agc ggc ttc gac aat gcc ggc ttt atc atg gga tca tcc   1056
Thr Cys Val Ser Gly Phe Asp Asn Ala Gly Phe Ile Met Gly Ser Ser
    300             305             310

tcc acc ctg ttc aac caa ttc ctc ctc caa atc aac agc acc agc atc   1104
Ser Thr Leu Phe Asn Gln Phe Leu Leu Gln Ile Asn Ser Thr Ser Ile
315             320             325             330

ccc acg atc ctg aag gat gcc ttc act gac atc ctc gag gac ctc ggt   1152
Pro Thr Ile Leu Lys Asp Ala Phe Thr Asp Ile Leu Glu Asp Leu Gly
            335             340             345

gag cgc aac gac gat atc gcc gtc tac tcc ccc aac ccc ttc tcc ggc   1200
Glu Arg Asn Asp Asp Ile Ala Val Tyr Ser Pro Asn Pro Phe Ser Gly
            350             355             360

tac cgc gac agc agc gag gat tac gcc aca gcc aag gac ctc gac gtt   1248
Tyr Arg Asp Ser Ser Glu Asp Tyr Ala Thr Ala Lys Asp Leu Asp Val
            365             370             375

gtc gac ggt ggt gaa gac ggc gag aac atc cct ctg cac ccg ctg atc   1296
Val Asp Gly Gly Glu Asp Gly Glu Asn Ile Pro Leu His Pro Leu Ile
    380             385             390

cag ccc gag cgt gcc gtc gat gtc atc ttc gcc atc gac tcc tct gcc   1344
Gln Pro Glu Arg Ala Val Asp Val Ile Phe Ala Ile Asp Ser Ser Ala
395             400             405             410

gac aca gac tac tac tgg ccc aac ggt acc tcc ctt gtc gcg acc tac   1392
Asp Thr Asp Tyr Tyr Trp Pro Asn Gly Thr Ser Leu Val Ala Thr Tyr
            415             420             425

gag cgc agt ctc gag ccc agc atc gcc aac ggc acc gcc ttc ccc gcc   1440
Glu Arg Ser Leu Glu Pro Ser Ile Ala Asn Gly Thr Ala Phe Pro Ala
            430             435             440

gtg ccg gat cag aac acc ttc gtc aac ctg ggt ctc aac tcc cgc ccg   1488
Val Pro Asp Gln Asn Thr Phe Val Asn Leu Gly Leu Asn Ser Arg Pro
            445             450             455

act ttc ttc ggc tgc gac ccc aag aac atc tcc ggc acc gcc ccc ctg   1536
Thr Phe Phe Gly Cys Asp Pro Lys Asn Ile Ser Gly Thr Ala Pro Leu
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9

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            Thr Phe Phe Gly Cys Asp Pro Lys Asn Ile Ser Gly Thr Ala Pro Leu
                460                 465                 470

            gtc att tat ctg cct aac agc ccc tac acc tac gac tcc aac ttc tcg    1584
            Val Ile Tyr Leu Pro Asn Ser Pro Tyr Thr Tyr Asp Ser Asn Phe Ser
            475                 480                 485                 490

            acc ttc aag ctg acc tac agc gac gag gag cgt gat tcc gtc atc acc    1632
            Thr Phe Lys Leu Thr Tyr Ser Asp Glu Glu Arg Asp Ser Val Ile Thr
                            495                 500                 505

            aac ggc tgg aac gtg gtc act cgc ggt aac ggt acc gtt gat gat aac    1680
            Asn Gly Trp Asn Val Val Thr Arg Gly Asn Gly Thr Val Asp Asp Asn
                        510                 515                 520

            ttc ccg tct tgc gtg gcg tgc gct att ctc caa gcg ctc cac tac agg    1728
            Phe Pro Ser Cys Val Ala Cys Ala Ile Leu Gln Ala Leu His Tyr Arg
                    525                 530                 535

            acg aac acc tct ctg cca gat atc tgt acc acc tgc ttt aac gat tac    1776
            Thr Asn Thr Ser Leu Pro Asp Ile Cys Thr Thr Cys Phe Asn Asp Tyr
                540                 545                 550

            tgc tgg aac ggc acg aca aac agc act acg cct gga gct tat gaa ccc    1824
            Cys Trp Asn Gly Thr Thr Asn Ser Thr Thr Pro Gly Ala Tyr Glu Pro
            555                 560                 565                 570

            agt gtg ctg att gct act agc ggt gcg atc aag agt gtc ttg gat tac    1872
            Ser Val Leu Ile Ala Thr Ser Gly Ala Ile Lys Ser Val Leu Asp Tyr
                            575                 580                 585

            tcg gtg ctg gcg ctc gcc atg ggt gtt gct gcg ttt atg ctg tag    1917
            Ser Val Leu Ala Leu Ala Met Gly Val Ala Ala Phe Met Leu
                        590                 595                 600


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            -20                 -15                 -10


Ala Asp Leu Ile Val Arg Ala Leu Pro Asn Ala Pro Asp Gly Tyr Thr
    -5                  -1  1                   5                   10


Pro Ser Asn Val Thr Cys Pro Ser Thr Arg Pro Ser Ile Arg Asp Ala
                15                  20                  25
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10

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Ser Gly Ile Ser Thr Asn Glu Thr Glu Trp Leu Lys Val Arg Arg Asn
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Ala Thr Leu Thr Pro Met Lys Asn Leu Leu Ser Arg Leu Asn Leu Thr
         45                    50                    55

Gly Phe Asp Thr Thr Ser Tyr Ile Asn Glu His Ser Ser Asn Ile Ser
         60                    65                    70

Asn Ile Pro Asn Ile Ala Ile Ala Ala Ser Gly Gly Gly Tyr Arg Ala
75                    80                    85                    90

Leu Thr Asn Gly Ala Gly Ala Leu Lys Ala Phe Asp Ser Arg Ser Asp
              95                    100                   105

Asn Ala Thr Asn Ser Gly Gln Leu Gly Gly Leu Leu Gln Ala Ala Thr
         110                   115                   120

Tyr Val Ser Gly Leu Ser Gly Gly Ser Trp Leu Val Gly Ser Met Phe
         125                   130                   135

Val Asn Asn Phe Ser Ser Ile Gly Glu Leu Gln Ala Ser Glu Lys Val
    140                   145                   150

Trp Arg Phe Asp Lys Ser Leu Leu Glu Gly Pro Asn Phe Asp His Ile
155                   160                   165                   170

Gln Ile Val Ser Thr Val Glu Tyr Trp Lys Asp Ile Thr Glu Glu Val
              175                   180                   185

Asp Gly Lys Ala Asn Ala Gly Phe Asn Thr Ser Phe Thr Asp Tyr Trp
         190                   195                   200

Gly Arg Ala Leu Ser Tyr Gln Leu Val Asn Ala Ser Asp Asp Lys Gly
         205                   210                   215

Gly Pro Asp Tyr Thr Trp Ser Ser Ile Ala Leu Met Asp Asp Phe Lys
         220                   225                   230

Asn Gly Gln Tyr Pro Met Pro Ile Val Val Ala Asp Gly Arg Asn Pro
235                   240                   245                   250
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11

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Gly Glu Ile Ile Val Glu Thr Asn Ala Thr Val Tyr Glu Val Asn Pro
            255               260               265


Trp Glu Phe Gly Ser Phe Asp Pro Ser Val Tyr Ala Phe Ala Pro Leu
            270               275               280


Gln Tyr Leu Gly Ser Arg Phe Glu Asn Gly Ser Ile Pro Asp Asn Gly
            285               290               295


Thr Cys Val Ser Gly Phe Asp Asn Ala Gly Phe Ile Met Gly Ser Ser
        300               305               310


Ser Thr Leu Phe Asn Gln Phe Leu Leu Gln Ile Asn Ser Thr Ser Ile
315               320               325               330


Pro Thr Ile Leu Lys Asp Ala Phe Thr Asp Ile Leu Glu Asp Leu Gly
            335               340               345


Glu Arg Asn Asp Asp Ile Ala Val Tyr Ser Pro Asn Pro Phe Ser Gly
            350               355               360


Tyr Arg Asp Ser Ser Glu Asp Tyr Ala Thr Ala Lys Asp Leu Asp Val
        365               370               375


Val Asp Gly Gly Glu Asp Gly Glu Asn Ile Pro Leu His Pro Leu Ile
    380               385               390


Gln Pro Glu Arg Ala Val Asp Val Ile Phe Ala Ile Asp Ser Ser Ala
395               400               405               410


Asp Thr Asp Tyr Tyr Trp Pro Asn Gly Thr Ser Leu Val Ala Thr Tyr
            415               420               425


Glu Arg Ser Leu Glu Pro Ser Ile Ala Asn Gly Thr Ala Phe Pro Ala
            430               435               440


Val Pro Asp Gln Asn Thr Phe Val Asn Leu Gly Leu Asn Ser Arg Pro
        445               450               455


Thr Phe Phe Gly Cys Asp Pro Lys Asn Ile Ser Gly Thr Ala Pro Leu
    460               465               470
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12

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Val Ile Tyr Leu Pro Asn Ser Pro Tyr Thr Tyr Asp Ser Asn Phe Ser
475             480         485             490


Thr Phe Lys Leu Thr Tyr Ser Asp Glu Glu Arg Asp Ser Val Ile Thr
        495             500             505


Asn Gly Trp Asn Val Val Thr Arg Gly Asn Gly Thr Val Asp Asp Asn
        510             515             520


Phe Pro Ser Cys Val Ala Cys Ala Ile Leu Gln Ala Leu His Tyr Arg
        525             530             535


Thr Asn Thr Ser Leu Pro Asp Ile Cys Thr Thr Cys Phe Asn Asp Tyr
    540             545             550


Cys Trp Asn Gly Thr Thr Asn Ser Thr Thr Pro Gly Ala Tyr Glu Pro
555             560             565             570


Ser Val Leu Ile Ala Thr Ser Gly Ala Ile Lys Ser Val Leu Asp Tyr
            575             580             585


Ser Val Leu Ala Leu Ala Met Gly Val Ala Ala Phe Met Leu
            590             595             600


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atg aag gtc gcc ctg ctc acc tta gca gcg ggc ttg gcc aat gcc gcc        48
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Met Lys Val Ala Leu Leu Thr Leu Ala Ala Gly Leu Ala Asn Ala Ala
            -20                  -15                  -10

tcg atc gcc gtc act cca cgg gcg ttc ccc aat gcc cct gat aaa tat     96
Ser Ile Ala Val Thr Pro Arg Ala Phe Pro Asn Ala Pro Asp Lys Tyr
        -5                  -1  1                  5

gct ccc gca aat gtt tcc tgt ccg tcg act cgt ccc agt atc cgc agt    144
Ala Pro Ala Asn Val Ser Cys Pro Ser Thr Arg Pro Ser Ile Arg Ser
10                  15                  20                  25

gcc gcc gcc ctg tcc acc agt gag aag gat tgg ttg caa gtg cgt cgg    192
Ala Ala Ala Leu Ser Thr Ser Glu Lys Asp Trp Leu Gln Val Arg Arg
            30                  35                  40

aat gag acc ctt gaa ccc atg aag gat ttg ctc ggg cgg ctc aat cta    240
Asn Glu Thr Leu Glu Pro Met Lys Asp Leu Leu Gly Arg Leu Asn Leu
            45                  50                  55

agc tcc ttt gat gcc tcg ggg tac att gac cgt cat aaa aac aat gca    288
Ser Ser Phe Asp Ala Ser Gly Tyr Ile Asp Arg His Lys Asn Asn Ala
            60                  65                  70

tcg aat att cca aac gtg gcc att gcc gtt tca ggt ggt ggt tac cgc    336
Ser Asn Ile Pro Asn Val Ala Ile Ala Val Ser Gly Gly Gly Tyr Arg
    75                  80                  85

gct ttg acc aat ggc gcg ggt gct atc aag gca ttc gat agt cgt acc    384
Ala Leu Thr Asn Gly Ala Gly Ala Ile Lys Ala Phe Asp Ser Arg Thr
90                  95                  100                 105

tcc aac tcc aca gcc cgt gga cag ctc gga ggc ctt ctg cag tcc tct    432
Ser Asn Ser Thr Ala Arg Gly Gln Leu Gly Gly Leu Leu Gln Ser Ser
            110                 115                 120

act tat cta tcg ggc ctc agt ggt ggt gga tgg ctc gtg ggc tcc gtg    480
Thr Tyr Leu Ser Gly Leu Ser Gly Gly Gly Trp Leu Val Gly Ser Val
            125                 130                 135

tac atc aac aac ttc acc act atc ggt gac ctg cag gcc agc gac aag    528
Tyr Ile Asn Asn Phe Thr Thr Ile Gly Asp Leu Gln Ala Ser Asp Lys
            140                 145                 150

gtc tgg gac ttc aag aac tct att ctg gag ggt cct gat gtt aaa cat    576
Val Trp Asp Phe Lys Asn Ser Ile Leu Glu Gly Pro Asp Val Lys His
    155                 160                 165

ttc caa ctg atc aac act gcc gcg tac tgg aag gat ctg tac gat gcg    624
Phe Gln Leu Ile Asn Thr Ala Ala Tyr Trp Lys Asp Leu Tyr Asp Ala
170                 175                 180                 185

gtg aag gat aag aga aac gcc ggg ttc aac act tcg ttg acc gac tac    672
Val Lys Asp Lys Arg Asn Ala Gly Phe Asn Thr Ser Leu Thr Asp Tyr
                190                 195                 200

tgg ggc cgt gct ctc tcc tat cag ttc atc aac gct acc act gat gat    720
Trp Gly Arg Ala Leu Ser Tyr Gln Phe Ile Asn Ala Thr Thr Asp Asp
```

14

```
ggc ggt ccc agt tat acc tgg tcg tcg att gcc ttg ggc gac gat ttc      768
Gly Gly Pro Ser Tyr Thr Trp Ser Ser Ile Ala Leu Gly Asp Asp Phe
        220             225             230

aag aag ggc aag atg ccc atg cct atc ctc gtc gcc gat gga cgt aac      816
Lys Lys Gly Lys Met Pro Met Pro Ile Leu Val Ala Asp Gly Arg Asn
    235             240             245

ccg ggc gaa ata ctt att gga agt aac tcg act gtg tat gaa ttt aac      864
Pro Gly Glu Ile Leu Ile Gly Ser Asn Ser Thr Val Tyr Glu Phe Asn
250             255             260             265

cca tgg gag ttc ggc tcc ttc gac ccg tca gta tac ggc ttt gca cca      912
Pro Trp Glu Phe Gly Ser Phe Asp Pro Ser Val Tyr Gly Phe Ala Pro
                270             275             280

ttg gag tat ctt gga tcc aat ttc gag aac ggt gaa ctc ccc aag ggg      960
Leu Glu Tyr Leu Gly Ser Asn Phe Glu Asn Gly Glu Leu Pro Lys Gly
            285             290             295

gaa tcg tgc gtg cgc ggc ttt gac aat gcg ggt ttt gtc atg ggt acc     1008
Glu Ser Cys Val Arg Gly Phe Asp Asn Ala Gly Phe Val Met Gly Thr
        300             305             310

agc tct tcc ctg ttt aac cag ttc att ctg cgt ctg aac ggc acc gat     1056
Ser Ser Ser Leu Phe Asn Gln Phe Ile Leu Arg Leu Asn Gly Thr Asp
    315             320             325

atc cct aat ttc ctc aag gag gcg att gcc gac gtc ttg gaa cat ctg     1104
Ile Pro Asn Phe Leu Lys Glu Ala Ile Ala Asp Val Leu Glu His Leu
330             335             340             345

ggc gaa aac gat gag gac att gca gtt tac gca ccc aac ccc ttc tac     1152
Gly Glu Asn Asp Glu Asp Ile Ala Val Tyr Ala Pro Asn Pro Phe Tyr
                350             355             360

aaa tat cgc aat tca acg gca gca tat tcg tca acc cca gag ctg gac     1200
Lys Tyr Arg Asn Ser Thr Ala Ala Tyr Ser Ser Thr Pro Glu Leu Asp
            365             370             375

gtg gtc gac gga ggt gaa gat gga cag aac gtg cct cta cac ccg ttg     1248
Val Val Asp Gly Gly Glu Asp Gly Gln Asn Val Pro Leu His Pro Leu
        380             385             390

atc cag ccc acc cac aac gtg gat gtg atc ttt gcc gtg gat tcg tcc     1296
Ile Gln Pro Thr His Asn Val Asp Val Ile Phe Ala Val Asp Ser Ser
    395             400             405

gct gat acg gac cat agc tgg ccc aac gga tcc tcc ttg atc tac acc     1344
Ala Asp Thr Asp His Ser Trp Pro Asn Gly Ser Ser Leu Ile Tyr Thr
410             415             420             425

tat gaa cgt agc ttg aat act aca ggt atc gcc aac ggg acc tcc ttc     1392
Tyr Glu Arg Ser Leu Asn Thr Thr Gly Ile Ala Asn Gly Thr Ser Phe
                430             435             440
```

```
cct gcg gtg ccc gac gtc aac acg ttc ctc aac ctt ggc ctg aac aaa    1440
Pro Ala Val Pro Asp Val Asn Thr Phe Leu Asn Leu Gly Leu Asn Lys
            445             450             455

cgc ccg acc ttc ttc gga tgc aat tca tcc aac acc agc acc ccg acc    1488
Arg Pro Thr Phe Phe Gly Cys Asn Ser Ser Asn Thr Ser Thr Pro Thr
            460             465             470

cca ttg att gtc tac ttg ccc aac gcc cct tac acc gcc gag tcc aac    1536
Pro Leu Ile Val Tyr Leu Pro Asn Ala Pro Tyr Thr Ala Glu Ser Asn
            475             480             485

acg tca acc ttc cag ctg gcg tat aag gac caa caa cgc gat gat att    1584
Thr Ser Thr Phe Gln Leu Ala Tyr Lys Asp Gln Gln Arg Asp Asp Ile
490             495             500             505

atc ttg aac ggc tac aac gtc gtc acc cag ggc aat gcc agt gcc gat    1632
Ile Leu Asn Gly Tyr Asn Val Val Thr Gln Gly Asn Ala Ser Ala Asp
                510             515             520

gca aac tgg ccc tcg tgc gtt ggg tgc gct att ctc cag cgg tcc acc    1680
Ala Asn Trp Pro Ser Cys Val Gly Cys Ala Ile Leu Gln Arg Ser Thr
                525             530             535

gaa cgt acg aac act aag ctt ccc gat atc tgc aat acc tgc ttc aag    1728
Glu Arg Thr Asn Thr Lys Leu Pro Asp Ile Cys Asn Thr Cys Phe Lys
            540             545             550

aat tac tgc tgg gac gga aag acc aac agc acc aca ccg gcc ccc tat    1776
Asn Tyr Cys Trp Asp Gly Lys Thr Asn Ser Thr Thr Pro Ala Pro Tyr
            555             560             565

gaa ccg gag cta ttg atg gag gcg tcg act tcc ggg gcc tcg aag gat    1824
Glu Pro Glu Leu Leu Met Glu Ala Ser Thr Ser Gly Ala Ser Lys Asp
570             575             580             585

caa ctg aac cgg aca gct gca gtc atc gcg ttc gca gtt atg ttc ttt    1872
Gln Leu Asn Arg Thr Ala Ala Val Ile Ala Phe Ala Val Met Phe Phe
                590             595             600

atg acg atc tag                                                     1884
Met Thr Ile


<210>  6
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<212>  PRT
<213>  Aspergillus oryzae

<400>  6

Met Lys Val Ala Leu Leu Thr Leu Ala Ala Gly Leu Ala Asn Ala Ala
            -20             -15             -10
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16

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Ser Ile Ala Val Thr Pro Arg Ala Phe Pro Asn Ala Pro Asp Lys Tyr
     -5                -1  1                  5

Ala Pro Ala Asn Val Ser Cys Pro Ser Thr Arg Pro Ser Ile Arg Ser
10                  15              20                  25

Ala Ala Ala Leu Ser Thr Ser Glu Lys Asp Trp Leu Gln Val Arg Arg
              30              35                  40

Asn Glu Thr Leu Glu Pro Met Lys Asp Leu Leu Gly Arg Leu Asn Leu
              45              50              55

Ser Ser Phe Asp Ala Ser Gly Tyr Ile Asp Arg His Lys Asn Asn Ala
          60              65              70

Ser Asn Ile Pro Asn Val Ala Ile Ala Val Ser Gly Gly Gly Tyr Arg
    75              80              85

Ala Leu Thr Asn Gly Ala Gly Ala Ile Lys Ala Phe Asp Ser Arg Thr
90              95              100                 105

Ser Asn Ser Thr Ala Arg Gly Gln Leu Gly Gly Leu Leu Gln Ser Ser
              110             115                 120

Thr Tyr Leu Ser Gly Leu Ser Gly Gly Gly Trp Leu Val Gly Ser Val
          125             130             135

Tyr Ile Asn Asn Phe Thr Thr Ile Gly Asp Leu Gln Ala Ser Asp Lys
    140             145             150

Val Trp Asp Phe Lys Asn Ser Ile Leu Glu Gly Pro Asp Val Lys His
    155             160             165

Phe Gln Leu Ile Asn Thr Ala Ala Tyr Trp Lys Asp Leu Tyr Asp Ala
170             175             180             185

Val Lys Asp Lys Arg Asn Ala Gly Phe Asn Thr Ser Leu Thr Asp Tyr
          190             195             200

Trp Gly Arg Ala Leu Ser Tyr Gln Phe Ile Asn Ala Thr Thr Asp Asp
          205             210             215

Gly Gly Pro Ser Tyr Thr Trp Ser Ser Ile Ala Leu Gly Asp Asp Phe
```

17

Lys Lys Gly Lys Met Pro Met Pro Ile Leu Val Ala Asp Gly Arg Asn
235   240   245

Pro Gly Glu Ile Leu Ile Gly Ser Asn Ser Thr Val Tyr Glu Phe Asn
250   255   260   265

Pro Trp Glu Phe Gly Ser Phe Asp Pro Ser Val Tyr Gly Phe Ala Pro
270   275   280

Leu Glu Tyr Leu Gly Ser Asn Phe Glu Asn Gly Glu Leu Pro Lys Gly
285   290   295

Glu Ser Cys Val Arg Gly Phe Asp Asn Ala Gly Phe Val Met Gly Thr
300   305   310

Ser Ser Ser Leu Phe Asn Gln Phe Ile Leu Arg Leu Asn Gly Thr Asp
315   320   325

Ile Pro Asn Phe Leu Lys Glu Ala Ile Ala Asp Val Leu Glu His Leu
330   335   340   345

Gly Glu Asn Asp Glu Asp Ile Ala Val Tyr Ala Pro Asn Pro Phe Tyr
350   355   360

Lys Tyr Arg Asn Ser Thr Ala Ala Tyr Ser Ser Thr Pro Glu Leu Asp
365   370   375

Val Val Asp Gly Gly Glu Asp Gly Gln Asn Val Pro Leu His Pro Leu
380   385   390

Ile Gln Pro Thr His Asn Val Asp Val Ile Phe Ala Val Asp Ser Ser
395   400   405

Ala Asp Thr Asp His Ser Trp Pro Asn Gly Ser Ser Leu Ile Tyr Thr
410   415   420   425

Tyr Glu Arg Ser Leu Asn Thr Thr Gly Ile Ala Asn Gly Thr Ser Phe
430   435   440

Pro Ala Val Pro Asp Val Asn Thr Phe Leu Asn Leu Gly Leu Asn Lys
445   450   455

```
Arg Pro Thr Phe Phe Gly Cys Asn Ser Ser Asn Thr Ser Thr Pro Thr
        460             465             470

Pro Leu Ile Val Tyr Leu Pro Asn Ala Pro Tyr Thr Ala Glu Ser Asn
        475             480             485

Thr Ser Thr Phe Gln Leu Ala Tyr Lys Asp Gln Gln Arg Asp Asp Ile
490             495             500             505

Ile Leu Asn Gly Tyr Asn Val Val Thr Gln Gly Asn Ala Ser Ala Asp
                510             515             520

Ala Asn Trp Pro Ser Cys Val Gly Cys Ala Ile Leu Gln Arg Ser Thr
            525             530             535

Glu Arg Thr Asn Thr Lys Leu Pro Asp Ile Cys Asn Thr Cys Phe Lys
        540             545             550

Asn Tyr Cys Trp Asp Gly Lys Thr Asn Ser Thr Thr Pro Ala Pro Tyr
        555             560             565

Glu Pro Glu Leu Leu Met Glu Ala Ser Thr Ser Gly Ala Ser Lys Asp
570             575             580             585

Gln Leu Asn Arg Thr Ala Ala Val Ile Ala Phe Ala Val Met Phe Phe
                590             595             600

Met Thr Ile


<210>   7
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<213>   Aspergillus oryzae

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cgaccacttc aggtcagt atg aaa ccc aca aca gct gca att gct tta gcc     111
                    Met Lys Pro Thr Thr Ala Ala Ile Ala Leu Ala
                            -35                 -30

ggg ttg ctg tct ggc gtg aca gcg gcc cca ggc cct cat gga gaa agg     159
Gly Leu Leu Ser Gly Val Thr Ala Ala Pro Gly Pro His Gly Glu Arg
        -25             -20             -15

att gag agg att gat aga act gtg ttg gaa cgt gca ttg cca aat gct     207
Ile Glu Arg Ile Asp Arg Thr Val Leu Glu Arg Ala Leu Pro Asn Ala
    -10             -5              -1  1               5

ccc gat gga tat gta ccg tcc aac gtc agt tgt cct gcg aat cgc ccg     255
Pro Asp Gly Tyr Val Pro Ser Asn Val Ser Cys Pro Ala Asn Arg Pro
            10              15              20

acg gtg cgt agc gca tca tcc ggg ctc tcg agc aat gag acc tcg tgg     303
Thr Val Arg Ser Ala Ser Ser Gly Leu Ser Ser Asn Glu Thr Ser Trp
            25              30              35

ttg aaa acc cga cgg gag aag act caa tct gcc atg aaa gat ttc ttc     351
Leu Lys Thr Arg Arg Glu Lys Thr Gln Ser Ala Met Lys Asp Phe Phe
        40              45              50

aac cat gtc acg att aag gac ttt gat gct gtc caa tat ctc gac aac     399
Asn His Val Thr Ile Lys Asp Phe Asp Ala Val Gln Tyr Leu Asp Asn
    55              60              65

cac tcg agt aac acg tcc aat ctt ccc aat att ggt att gcg gtg tct     447
His Ser Ser Asn Thr Ser Asn Leu Pro Asn Ile Gly Ile Ala Val Ser
70              75              80              85

ggt gga ggt tat cgc gcc ctg atg aac ggt gcc gga gcg atc aaa gcg     495
Gly Gly Gly Tyr Arg Ala Leu Met Asn Gly Ala Gly Ala Ile Lys Ala
            90              95              100

ttt gat agc cga acg gag aac tcg acg gcg acg gga cag ttg ggt ggt     543
Phe Asp Ser Arg Thr Glu Asn Ser Thr Ala Thr Gly Gln Leu Gly Gly
            105             110             115

ctg cta cag tcg gcg acg tat ctg gct ggt ctg agt ggt ggt gga tgg     591
Leu Leu Gln Ser Ala Thr Tyr Leu Ala Gly Leu Ser Gly Gly Gly Trp
        120             125             130

ctg gtg ggg tcg atc tat atc aac aat ttc acc acc att tca gca ctg     639
Leu Val Gly Ser Ile Tyr Ile Asn Asn Phe Thr Thr Ile Ser Ala Leu
        135             140             145

cag acc cat gag gat ggt gct gtc tgg cag ttt caa aac tcg att ttt     687
Gln Thr His Glu Asp Gly Ala Val Trp Gln Phe Gln Asn Ser Ile Phe
150             155             160             165
```

20

```
gag ggc cct gac ggc gat agc att cag att ctg gat tct gcg act tac      735
Glu Gly Pro Asp Gly Asp Ser Ile Gln Ile Leu Asp Ser Ala Thr Tyr
                170                 175                 180

tac aag cac gtt tac gat gca gtg caa gac aag aag gat gcg gga tac      783
Tyr Lys His Val Tyr Asp Ala Val Gln Asp Lys Lys Asp Ala Gly Tyr
                185                 190                 195

gaa acc tct atc act gat tat tgg ggt cgc gct ctc tct tat caa tta      831
Glu Thr Ser Ile Thr Asp Tyr Trp Gly Arg Ala Leu Ser Tyr Gln Leu
                200                 205                 210

atc aat gct acc gac ggc ggt ccg agc tat act tgg tcg tcc att gcc      879
Ile Asn Ala Thr Asp Gly Gly Pro Ser Tyr Thr Trp Ser Ser Ile Ala
                215                 220                 225

cta acc gat aca ttt aag cag gca gat atg ccg atg cct ctc ctc gtt      927
Leu Thr Asp Thr Phe Lys Gln Ala Asp Met Pro Met Pro Leu Leu Val
230                 235                 240                 245

gcc gac ggt cgg tat ccc gat gag ctc gtg gtc agc agc aac gct act      975
Ala Asp Gly Arg Tyr Pro Asp Glu Leu Val Val Ser Ser Asn Ala Thr
                250                 255                 260

gtc tat gag ttt aac cct tgg gag ttt ggt act ttt gat cca aca gtc     1023
Val Tyr Glu Phe Asn Pro Trp Glu Phe Gly Thr Phe Asp Pro Thr Val
                265                 270                 275

tac ggg ttt gtg cct cta gaa tac gta ggc tct aaa ttc gac ggt ggt     1071
Tyr Gly Phe Val Pro Leu Glu Tyr Val Gly Ser Lys Phe Asp Gly Gly
                280                 285                 290

tct atc ccc gac aac gag acc tgt gta cgc gga ttc gac aac gcc ggt     1119
Ser Ile Pro Asp Asn Glu Thr Cys Val Arg Gly Phe Asp Asn Ala Gly
                295                 300                 305

ttt gtt atg ggt act tcg tca agt ttg ttc aac cag ttc ttc ctg cag     1167
Phe Val Met Gly Thr Ser Ser Ser Leu Phe Asn Gln Phe Phe Leu Gln
310                 315                 320                 325

gtt aac tca act tcg ctt cct gat ttc ctg aag acg gca ttc tcg gac     1215
Val Asn Ser Thr Ser Leu Pro Asp Phe Leu Lys Thr Ala Phe Ser Asp
                330                 335                 340

atc ttg gca aag att ggt gaa gaa gat gag gac att gct gtc tat gca     1263
Ile Leu Ala Lys Ile Gly Glu Glu Asp Glu Asp Ile Ala Val Tyr Ala
                345                 350                 355

ccc aac ccg ttc tac aat tgg gcc ccc gtg agc tca cca gca gcc cat     1311
Pro Asn Pro Phe Tyr Asn Trp Ala Pro Val Ser Ser Pro Ala Ala His
                360                 365                 370

caa cag gaa ctc gat atg gtg gac ggt ggc gag gat ctt cag aac att     1359
Gln Gln Glu Leu Asp Met Val Asp Gly Gly Glu Asp Leu Gln Asn Ile
                375                 380                 385

cct ctg cat cct tta att cag cca gag cgt cac gta gat gtt atc ttt     1407
```

21

```
      Pro Leu His Pro Leu Ile Gln Pro Glu Arg His Val Asp Val Ile Phe
      390                 395             400                 405


      gct gtt gac tcc tcc gcc gac acg act tat tct tgg ccc aac ggc aca     1455
      Ala Val Asp Ser Ser Ala Asp Thr Thr Tyr Ser Trp Pro Asn Gly Thr
                      410             415                 420


      gct ctc gtt gcc act tac gag cgc agc ctg aac tcc acc ggc atc gct     1503
      Ala Leu Val Ala Thr Tyr Glu Arg Ser Leu Asn Ser Thr Gly Ile Ala
                  425             430                 435


      aac gga acc tca ttc ccc gcg atc cct gac cag aat acc ttt gtt aac     1551
      Asn Gly Thr Ser Phe Pro Ala Ile Pro Asp Gln Asn Thr Phe Val Asn
                  440             445                 450


      aat ggc ttg aat acg cgg cca acg ttc ttc gga tgt aac agt acg aac     1599
      Asn Gly Leu Asn Thr Arg Pro Thr Phe Phe Gly Cys Asn Ser Thr Asn
          455             460                 465


      acc aca ggc cct acg cct ttg gtt gtc tac ctt ccg aac tat cca tac     1647
      Thr Thr Gly Pro Thr Pro Leu Val Val Tyr Leu Pro Asn Tyr Pro Tyr
      470                 475             480                 485


      gtg tct tac tcg aac tgg tca acc ttc cag cca agc tat gag atc tcc     1695
      Val Ser Tyr Ser Asn Trp Ser Thr Phe Gln Pro Ser Tyr Glu Ile Ser
                  490             495                 500


      gaa aga gac gac acc atc cgc aac gga tat gat gtg gtg acg atg ggt     1743
      Glu Arg Asp Asp Thr Ile Arg Asn Gly Tyr Asp Val Val Thr Met Gly
                  505             510                 515


      aac agc act cgt gat ggt aac tgg acg acc tgc gtc ggt tgt gct att     1791
      Asn Ser Thr Arg Asp Gly Asn Trp Thr Thr Cys Val Gly Cys Ala Ile
                  520             525                 530


      ctg agt cgg tct ttc gag cgc acg aac acc cag gtt ccg gat gcc tgc     1839
      Leu Ser Arg Ser Phe Glu Arg Thr Asn Thr Gln Val Pro Asp Ala Cys
          535             540                 545


      acc cag tgc ttc cag aag tac tgc tgg gat ggc act acg aac tcc acc     1887
      Thr Gln Cys Phe Gln Lys Tyr Cys Trp Asp Gly Thr Thr Asn Ser Thr
      550                 555             560                 565


      aac cct gcc gac tat gag cct gtc acc ctg ttg gag gat agt gct ggt     1935
      Asn Pro Ala Asp Tyr Glu Pro Val Thr Leu Leu Glu Asp Ser Ala Gly
                  570             575                 580


      tcc gct ctc tcc ccg gct gtc atc acc acc atc gta gcg acc agt gct     1983
      Ser Ala Leu Ser Pro Ala Val Ile Thr Thr Ile Val Ala Thr Ser Ala
                  585             590                 595


      gct ctt ttc acc ttg ctg tgagactgga gcaattctgt tggatacggc           2031
      Ala Leu Phe Thr Leu Leu
                  600


      tttctttctc ttttctcttc ccaggaacta cttttatata tattgcgata tatcccgact  2091
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22

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tttttttttg cttctcttca atttcttcct cctgtgcctt ttagcttgat tgtatttaag   2151

ttacatctcg gccttggcac ggtccttttt gaatatattt ctggattacc caaaaaaaaa   2211

aaaaaaaaaa aaaaaaaaaa aa                                              2233
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<210>   8
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<213>   Aspergillus oryzae

<400>   8

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Met Lys Pro Thr Thr Ala Ala Ile Ala Leu Ala Gly Leu Leu Ser Gly
         -35                 -30                 -25


Val Thr Ala Ala Pro Gly Pro His Gly Glu Arg Ile Glu Arg Ile Asp
         -20                 -15                 -10


Arg Thr Val Leu Glu Arg Ala Leu Pro Asn Ala Pro Asp Gly Tyr Val
     -5              -1  1                 5                   10


Pro Ser Asn Val Ser Cys Pro Ala Asn Arg Pro Thr Val Arg Ser Ala
                 15                 20                 25


Ser Ser Gly Leu Ser Ser Asn Glu Thr Ser Trp Leu Lys Thr Arg Arg
             30                 35                 40


Glu Lys Thr Gln Ser Ala Met Lys Asp Phe Phe Asn His Val Thr Ile
         45                 50                 55


Lys Asp Phe Asp Ala Val Gln Tyr Leu Asp Asn His Ser Ser Asn Thr
     60                 65                 70


Ser Asn Leu Pro Asn Ile Gly Ile Ala Val Ser Gly Gly Gly Tyr Arg
 75                 80                 85                 90


Ala Leu Met Asn Gly Ala Gly Ala Ile Lys Ala Phe Asp Ser Arg Thr
                 95                 100                105


Glu Asn Ser Thr Ala Thr Gly Gln Leu Gly Gly Leu Leu Gln Ser Ala
             110                115                120


Thr Tyr Leu Ala Gly Leu Ser Gly Gly Gly Trp Leu Val Gly Ser Ile
         125                130                135
```

23

```
Tyr Ile Asn Asn Phe Thr Thr Ile Ser Ala Leu Gln Thr His Glu Asp
    140             145             150

Gly Ala Val Trp Gln Phe Gln Asn Ser Ile Phe Glu Gly Pro Asp Gly
155             160             165                 170

Asp Ser Ile Gln Ile Leu Asp Ser Ala Thr Tyr Tyr Lys His Val Tyr
            175             180             185

Asp Ala Val Gln Asp Lys Lys Asp Ala Gly Tyr Glu Thr Ser Ile Thr
            190             195             200

Asp Tyr Trp Gly Arg Ala Leu Ser Tyr Gln Leu Ile Asn Ala Thr Asp
        205             210             215

Gly Gly Pro Ser Tyr Thr Trp Ser Ser Ile Ala Leu Thr Asp Thr Phe
    220             225             230

Lys Gln Ala Asp Met Pro Met Pro Leu Leu Val Ala Asp Gly Arg Tyr
235             240             245                 250

Pro Asp Glu Leu Val Val Ser Ser Asn Ala Thr Val Tyr Glu Phe Asn
            255             260             265

Pro Trp Glu Phe Gly Thr Phe Asp Pro Thr Val Tyr Gly Phe Val Pro
        270             275             280

Leu Glu Tyr Val Gly Ser Lys Phe Asp Gly Gly Ser Ile Pro Asp Asn
        285             290             295

Glu Thr Cys Val Arg Gly Phe Asp Asn Ala Gly Phe Val Met Gly Thr
    300             305             310

Ser Ser Ser Leu Phe Asn Gln Phe Phe Leu Gln Val Asn Ser Thr Ser
315             320             325             330

Leu Pro Asp Phe Leu Lys Thr Ala Phe Ser Asp Ile Leu Ala Lys Ile
            335             340             345

Gly Glu Glu Asp Glu Asp Ile Ala Val Tyr Ala Pro Asn Pro Phe Tyr
            350             355             360
```

24

Asn Trp Ala Pro Val Ser Ser Pro Ala Ala His Gln Gln Glu Leu Asp
        365   370   375

Met Val Asp Gly Gly Glu Asp Leu Gln Asn Ile Pro Leu His Pro Leu
    380   385   390

Ile Gln Pro Glu Arg His Val Asp Val Ile Phe Ala Val Asp Ser Ser
395   400   405   410

Ala Asp Thr Thr Tyr Ser Trp Pro Asn Gly Thr Ala Leu Val Ala Thr
            415   420   425

Tyr Glu Arg Ser Leu Asn Ser Thr Gly Ile Ala Asn Gly Thr Ser Phe
        430   435   440

Pro Ala Ile Pro Asp Gln Asn Thr Phe Val Asn Asn Gly Leu Asn Thr
        445   450   455

Arg Pro Thr Phe Phe Gly Cys Asn Ser Thr Asn Thr Thr Gly Pro Thr
    460   465   470

Pro Leu Val Val Tyr Leu Pro Asn Tyr Pro Tyr Val Ser Tyr Ser Asn
475   480   485   490

Trp Ser Thr Phe Gln Pro Ser Tyr Glu Ile Ser Glu Arg Asp Asp Thr
            495   500   505

Ile Arg Asn Gly Tyr Asp Val Val Thr Met Gly Asn Ser Thr Arg Asp
        510   515   520

Gly Asn Trp Thr Thr Cys Val Gly Cys Ala Ile Leu Ser Arg Ser Phe
        525   530   535

Glu Arg Thr Asn Thr Gln Val Pro Asp Ala Cys Thr Gln Cys Phe Gln
    540   545   550

Lys Tyr Cys Trp Asp Gly Thr Thr Asn Ser Thr Asn Pro Ala Asp Tyr
555   560   565   570

Glu Pro Val Thr Leu Leu Glu Asp Ser Ala Gly Ser Ala Leu Ser Pro
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Ala Val Ile Thr Thr Ile Val Ala Thr Ser Ala Ala Leu Phe Thr Leu

25

Leu

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Gly Lys Lys Asn Ala Ala
            20